# Elnur Imamaliyev

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## Peer-reviewed Publications

**ACM CHI 2026 (Main Conference, full paper)** — *Anticipation Before Action: EEG-Based Implicit Intent Detection for Adaptive Gaze Interaction in Mixed Reality. (Authors: Chiossi, F.,* ***Imamaliyev, E.,*** *Bleichner, M., Mayer, S.)* DOI: 10.48550/arXiv.2601.18750

## Experience

**Human-Computer Interaction Researcher** — Munich, Germany
*Ludwig Maximilian University of Munich, Human-Centered Ubiquitous Media Group* — *Dec. 2024 – Dec. 2025*

- Developed coding frameworks using Python, C#, Unity, GenAI, and Deep Learning.
- Conducted large-scale user studies for human-AI collaboration and neuroadaptive wearable systems.
- Co-authored an ACM CHI paper in the main conference at the intersection of UX, XR, and physiological sensing.
- Analyzed physiological, behavioral, and survey data to improve adaptive interaction and user-centered design.

**Supervisor & Lead ML Engineer** — Remote
*Baku State University, Student Scientific and Technical Creativity Center* — *Apr. 2025 – Sep. 2025*

- Mainly, led the development of **NeuroScreen**, securing **1st place** at the TEKNOFEST global competition.
- Instructed multidisciplinary workshops on: *Applied Machine Learning and Signal Processing with Python*; *Introduction to Robotics and Neuroprosthetic Arm Control with Raspberry Pi*

**Graduate Research Assistant and IT-SysAdmin (Werkstudent)** — Oldenburg, Germany
*University of Oldenburg, Neurophysiology of Everyday Life Group and Complex Systems Group* — *May 2024 – Nov. 2024*

- NELI Group: Conducted "beyond-the-lab" studies in physiological sensing and audio-visual perception research
- Complex Systems Group: Administrated Linux/Windows systems and High Performance Computing clusters

**Startup Teacher & Full-Stack Developer** — Baku, Azerbaijan / Hybrid
*New Space Innovation* — *Mar. 2022 – Apr. 2024*

- Taught Python, Web technologies, UX design and business strategy through hands-on workshops
- Guided students in building functional MVPs, end-to-end digital products with iterative design refinement

## Education

**Ludwig Maximilian University of Munich** — Munich, Germany
*MSc Thesis: Neuroadaptive HCI – Neural Click Detection in Mixed Reality (ACM CHI 2026)* — *Nov. 2024 – Aug. 2025*

**University of Oldenburg** — Oldenburg, Germany
*Master of Science, Computational Neuroscience (Focus: ML, XR, HCI), Grade: 1.6* — *Oct. 2023 – Aug. 2025*

**Baku State University** — Baku, Azerbaijan
*Bachelor of Science, Biology (Focus: Computational Intelligence and )* — *Sep. 2019 – Jul. 2023*

- *BSc Thesis: BrainAssist – Evaluating Physiological Signals for Neuroprosthesis Robot Hand Control and Multimodal Health Monitoring Prototype*
- *Summer Internship: Donders Institute for Brain, Cognition, and Behaviour, 2023*
- *Summer Internship: Boğaziçi University – Behavioral Neuroscience Lab, 2022*

## Skills

**Programming:** Python, C#, MATLAB
**Data Processing:** Classification, SVM, LDA, Filtering, ICA, Feature extraction
**HCI / XR:** Unity 3D, Mixed Reality, EEG, Eye-tracking, Multimodal sensors
**Machine Learning Frameworks:** TensorFlow, PyTorch
**Artificial Intelligence:** Local LLMs, GenAI, Prompt Engineering
**Specific Toolboxes:** Google-YamNet, EEGLAB, MNE, PsychoPy
**Software Development:** REST APIs, Bootstrap, Flask, PostgreSQL, Git, Docker, VS Code, GitHub Copilot
**Research Methods:** Experimental Design, Statistical Analysis, Hypothesis Testing, Scientific Writing
**Soft Skills:** Team-building, Teaching, Supervising

## Project Portfolio

**NeurodaptiXR - MSc Thesis (CHI'26)** | Unity-3D, C#, Eye-Tracking Nov. 2024 – Aug. 2025

- Designed and conducted user studies in Unity-3D; developed DL-based classifiers for neural intention detection to improve gaze-based interactions. Accepted to the ACM CHI 2026 main conference. GitHub Link

**NeuroScreen - Robotics and Health Monitoring** | Python, Eye-Tracking, PyTorch Nov. 2022 – Sep. 2025

- Designed multimodal BCI for paralyzed patients to control IoT devices, robotic hand prototype via integrating real-time signals, EEG and eye-tracking, with AI-enhanced Health monitoring. GitHub Link

**SentryLlama - RAG-based Local LLM Augmentation** | Python, Llama-3.1, MinerU Jan. 2026 – Feb. 2026

- Evaluated local LLM performance via comparative RAG and hardware-aware pipelines, integrating the security-tuned Llama-3.1 reasoning model with MinerU for computer vision-based multimodal context extraction. GitHub Link

**NoApplAI - Application Automatization** | PyTorch, React, PostgreSQL Aug. 2024 – Dec. 2025

- Developed full-stack application portal with Flask REST API, React frontend, PostgreSQL database, and LLM-integrated matching/chatbot systems. GitHub Link

**GenAI Image Enhancement with Physiological RAG feedback** | GenAI, PsychoPy Jan. 2025 – May. 2025

- Developed GAN-generated images for human-in-the-loop experiment, integrated physiological data (ERP and Gaze) with perceptual and attentional metrics, precise stimulus timing, and ERP-compatible event logging. GitHub Link

**AMBI4NS - Multivariate Amplitude-Binned TRF** | TensorFlow, EEGLAB, mTRF Jun. 2024 – Oct. 2024

- Showed that applying multivariate amplitude-binned envelope to regression based TRF modeling increases neural response prediction; *Note: Currently extending the work with YAMnet (TensorFlow) sound classification to detect the causal effects between speech and non-speech sounds.* GitHub Link

**Coupleccino - Coupled Neurons under Effect of Caffeine** | MATLAB, Modeling May. 2024 – Jun. 2024

- Modeling caffeine effects of gap-junction conductance on electrically coupled neurons, we found causal effects on alertness and spike features at the single-cell level. GitHub Link

## Posters

Munich Brain Day 2025 - *Beyond Univariate Envelope Modeling: EEG Response Prediction with the Multivariate Amplitude-Binned TRF Model. (Authors:* ***Imamaliyev, E.,*** *Bleichner, M.)* DOI: 10.13140/RG.2.2.31742.65602

Interdisciplinary College (IK) 2025 - *The Coupleccino Model - Computational Modeling of the Effects of Caffeine on Electrically Coupled Neurons. (Authors:* ***Imamaliyev, E.,*** *Duken, M.)* DOI: 10.13140/RG.2.2.11609.99687

## Awards and Scholarships

First Place – "Accessible Life Technologies" competition among 97 countries (TEKNOFEST, 2025)

STIBET Excellent Graduation (DAAD, 2025)

Lower Saxony Scholarship (University of Oldenburg, 2024)

## Supplementary Information

**Certifications**:

- IELTS (7.5, 2026),
- AI Engineering Professional Certificate (IBM/Coursera, 2025),
- Computational Neuroscience (University of Washington, 2023),
- Data Science Bootcamp (2022)

**Languages**:

- English (Fluent),
- Turkish (Fluent),
- German (Intermediate),
- Azerbaijani (Native)